

THAT WHICH IS CLAIMED:

1. A method of drilling a hole in a multiple-layer structure, comprising:  
positioning an electromagnet proximate the structure such that an  
5 opening defined by the electromagnet defines a location of the hole to be  
drilled in the structure;  
positioning a clamp proximate the structure opposite the  
electromagnet;  
energizing the electromagnet to securely hold the multiple layer  
10 structure together;  
positioning a drilling tool within the opening defined by the  
electromagnet; and  
drilling a hole in the multiple layer structure at the location defined by  
the opening defined by the electromagnet.
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2. The method of claim 1, further comprising positioning a template on  
the structure in the location to be drilled, wherein positioning the  
electromagnet comprises positioning the electromagnet on the template such  
that the opening defined by the electromagnet is aligned with an opening  
20 defined by the template.
3. The method of claim 2, wherein the electromagnet comprises a  
guidepiece aligned with and partially defining the opening, and wherein  
positioning the electromagnet on the template comprises positioning the  
25 guidepiece within the opening defined by the template to align the opening  
defined by the electromagnet with the opening defined by the template.
4. The method of claim 1, wherein positioning the clamp comprises  
positioning the clamp such that an opening defined by the clamp is aligned  
30 with the opening defined by the electromagnet

5. The method of claim 1, further comprising:  
flowing air through the opening defined by the electromagnet; and  
inserting a fastener into the hole drilled in the multiple-layer structure  
by pushing the fastener through the opening defined by the electromagnet and  
into the hole drilled in the multiple-layer structure with the air.
6. The method of claim 5, wherein flowing air through the opening  
defined by the electromagnet comprises:  
aligning a tube with the opening defined by the electromagnet; and  
pulling air through the tube.
7. The method of claim 5, wherein inserting the fastener comprises  
pulling the fastener through the tube and pushing the fastener through the  
opening defined by the electromagnet, and into the hole drilled in the multiple-  
layer structure.
8. The method of claim 5, wherein flowing air through the opening  
defined by the electromagnet comprises maintaining a laminar air flow  
through the opening defined by the electromagnet.
9. The method of claim 1, wherein the clamp defines an opening, and  
wherein positioning the clamp comprises receiving an indication from an  
indicator located on at least one of the electromagnet and the clamp that the  
openings defined by the electromagnet and the clamp are aligned.
10. The method of claim 1, wherein drilling a hole comprises drilling a  
hole having a countersunk portion.
11. The method of claim 1, further comprising sealing the multiple layers  
prior to positioning the electromagnet.

12. The method of claim 1, further comprising cooling the electromagnet with air flowing through the electromagnet at least during a portion of the time that the electromagnet is energized.

5 13. The method of claim 1, further comprising removing debris from the hole as the hole is drilled by creating air flow through the opening defined by the electromagnet in a direction away from the structure.

10 14. The method of claim 1, wherein positioning an electromagnet comprises normalizing the opening defined by the electromagnet to the portion of the structure to be drilled.

15. A method of inserting a fastener in a hole defined by a workpiece, comprising:

15 aligning an opening defined by an insertion tube with the hole defined by the workpiece;

generating air flow through the insertion tube in a direction toward the workpiece;

placing the fastener into the insertion tube; and

20 carrying the fastener into the hole defined by the workpiece as a result of the air flow through the tube.

25 16. The method of inserting a fastener of claim 15, wherein aligning the opening defined by the insertion tube with the hole defined by the workpiece comprises aligning the opening defined by the insertion tube with an opening defined by a template that is placed on the workpiece such that the opening defined by the template is aligned with the hole defined by the workpiece.

30 17. The method of inserting a fastener of claim 15, further comprising controlling the air flow through the opening defined by the insertion tube.